

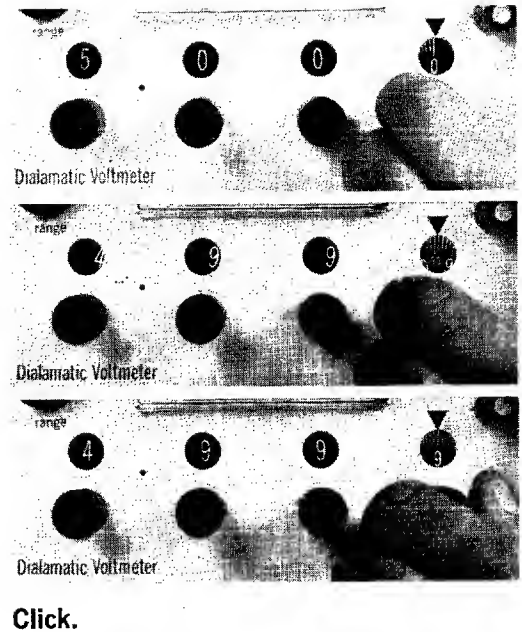
# The Dialamatic Voltmeter:

It starts where  
ordinary differential  
voltmeters  
leave off.

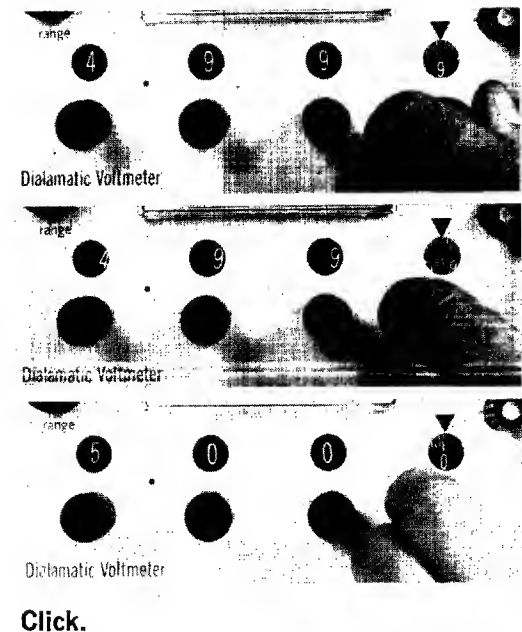


(Actual Size)

**With an ordinary differential voltmeter, it takes 56 clicks to get from 5.000 to 4.999 and back again to 5.000.**



**With the Dialamatic, it only takes 2.**



### Transfematic Switch\*

The performance of this revolutionary new instrument is due to its Transfematic Switch. This device couples the switch being adjusted with all switches to the left. Yet each one can still be operated independently. Continuous adjustment can be accomplished with only the righthand knob. All four decades move simultaneously when advancing through a major transfer point, such as from 4.999 to 5.000 and on. Actually, it would be possible to start at 0.000 and go all the way to 9.999 using only the right-hand knob.

The Dialamatic's transfer procedure also works identically in reverse, which is particularly useful in tracking a slowly drifting voltage. The right-hand dial is actually a potentiometer with better than two-digit resolution. The result: a five-digit voltmeter.

### Non-Saturating Null Amplifier

This feature eliminates another time-consuming process associated with ordinary differential voltmeters—that of selecting the proper null sensitivity while balancing each decade. The null amplifier allows the operator to switch to the most sensitive position, then dial the correct balancing voltages without further adjusting sensitivity. It is impossible to overload the Dialamatic within its operating limits. For example, a 1,000-volt load into the

\*Patent applied for.

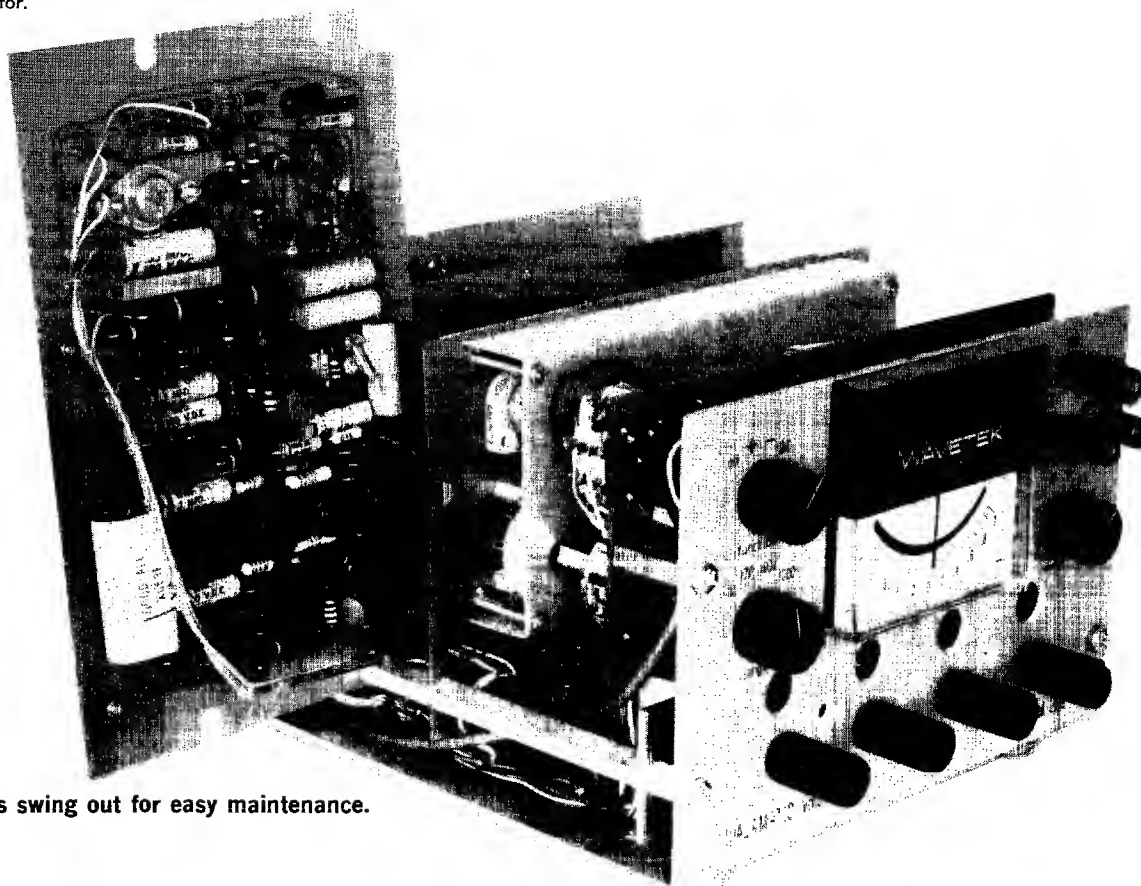
1-volt input will not damage the unit. Once the overload is removed, the meter responds to a new reading instantly. However, null sensitivity can be reduced so that the Dialamatic may be used as a deviation meter in cases where the deviation voltage exceeds maximum sensitivity.

### Precision Reference and Resistors

Precision reference in the Dialamatic is obtained by using two low TC zener diodes that have been aged and accurately matched. The combination provides zero TC. The reference and attenuator circuits incorporate precision ( $\pm 5$  ppm/ $^{\circ}\text{C}$ ) wire-wound resistors for long-term accuracy and stability.

### Maintenance Accessibility

Convenient servicing of the Dialamatic is another significant improvement over ordinary differential voltmeters. All circuits are mounted on modular plug-in cards in the same manner as Wavetek's reliable function generators. These circuit cards swing out of the case for easy maintenance. Extremely high common mode rejection is obtained with minimum shielding. Additionally, all-silicon semiconductors are used throughout the Dialamatic for accuracy and reliability over a broad temperature range.



Circuit boards swing out for easy maintenance.

## SPECIFICATIONS

For Model 201 (dc) and Model 202 (ac and dc).

### Display

Four transfermatic digital dials, including one vernier dial calibrated to two digits, resulting in 5-digit resolution; mirror scale taut band null detection meter.

### Input

0 to 1,000v dc.

\*\* 1 mv to 1,000 v ac.

Note: The unit is supplied with front input as shown. Rear input is available optionally at no additional cost.

### Selectable Voltage Ranges

1v, 10v, 100v, and 1,000v (decimal indicator automatically coupled to range switch).

### Polarity

Front-panel selected + and - and ac.

### Resolution

10  $\mu$ v ( $\frac{1}{2}$  of minor division on mirror scale of null meter).

### Null Ranges

Full scale sensitivity is  $\pm 0.1\%$ , 1% and 10% of selected voltage range and TVM.

Note: Normally used in most sensitive position because of non-saturating null amplifier.

### DC Input Impedance

Infinite at null in 1v and 10v ranges, 10 megohms at null in 100v and 1,000v ranges.

### \*\*AC Input Impedance

1 megohm and 40 pf.

### DC Accuracy

$\pm 0.01\%$  of reading  $\pm 0.001\%$  of selected voltage range  $\pm 10 \mu$ v.

### \*\*AC Accuracy

$\pm 0.2\%$  of reading  $\pm 25 \mu$ v 20 Hz to 10 KHz, 0.001v to 1,000v.

$\pm 1\%$  of reading  $\pm 25 \mu$ v 10 KHz to 20 KHz, 0.003v to 1,000v.

### Reference Stability

$\pm 0.002\%$  after 15 min. warmup at constant temperature and line.

### Common Mode Rejection

With 1 K $\Omega$  unbalance in either side of input: 130 db at dc, 100 db at 60 Hz, 82 db at 400 Hz in 1v and 10v ranges; 100 db at dc, 70 db at 60 Hz and 52 db at 400 Hz in 100v and 1,000v ranges.

(Note: Ni-cad battery versions provide complete line isolation.)

### Transistorized Voltmeter (TVM)

0.001v to 1,000v full scale in 4 ranges.  $R_{in}$  10 megohms Accuracy 3% of full scale.

### Recorder Output

$\pm 300$  mv proportional to null reading; output impedance 10 K  $\Omega$ .

### Environmental

Specifications apply for  $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$ . For operation from  $0^{\circ}\text{C}$  to  $50^{\circ}\text{C}$ , derate by a factor of 3.

### Power Requirements (Models 201 & 202)

115v  $\pm 10\%$  or 230v  $\pm 10\%$ , 50 Hz to 400 Hz, less than 5w.

### Power Requirements (Models 201B & 202B)

Ni-cad rechargeable battery with built-in charger; 115v  $\pm 10\%$  or 230v  $\pm 10\%$ , 50 Hz to 400 Hz, less than 10w. Simultaneous charge and operation; 16 hours of operation for every 16 hours of charge.

### Dimensions

7  $\frac{3}{4}$ " w, 5  $\frac{1}{4}$ " h, 10" d.

### Weight

Models 201 & 202: 8 lb.

Models 201B & 202B: 10 lb.

### Prices (F.O.B. San Diego)

Model 201 \$595.00

Model 201B \$695.00

Model 202 \$795.00

Model 202B \$945.00

Prices and specifications subject to change.

\*\*Models 202/202B only.

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